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10/001,736	10/31/2001	Christophe De Vleeschouwer	IMEC227.001AUS	2689

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EXAMINER
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ART UNIT	PAPER NUMBER
2621	

NOTIFICATION DATE	DELIVERY MODE
01/30/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/001,736	VLEESCHOUWER, CHRISTOPHE DE
	Examiner	Art Unit	
	Dave Czekaj	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2007*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *37 and 38* is/are allowed.

6)☒ Claim(s) *1-9, 11-26, 28-36 and 39-58* is/are rejected.

7)☒ Claim(s) *10 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20080117

DETAILED ACTION

Response to Arguments

On pages 16-17, applicant argues that Chan fails to disclose the encoding

parameter based upon a characteristic indicative of an energy content, the

characteristic being determined without using either the first sub-encoded block or set of

blocks of the current frame. While the applicant's points are understood, the examiner

respectfully disagrees. See for example Chan column 5, lines 45-55. There Chan

discloses computing a value V where V represents the sum of the AC and DC error

energy values. This value represents the difference energy between the luminance

values of the predicted block and luminance values of the original block. Hence, since

the V value is determined using the predicted and original blocks, Chan is determining

the characteristic without using the first sub-encoded block. Therefore the rejection has

been maintained.

On page 17, applicant argues that Kim fails to disclose computing the

characteristic identifies the time elapsed between the current and reference frames.

While the applicant's points are understood, the examiner respectfully disagrees. See

for example Kim column 4, lines 51-60. There Kim discloses calculating a reference

quantization parameter based on the bit rate and picture rate. By knowing the picture

rate and bit rate, Kim can calculate the time between frames. Therefore the rejection

has been maintained.

On page 17, applicant argues that Kim fails to disclose wherein the encoded

frames are transmitted over a transmission channel wherein the encoding compensates

for channel bandwidth limitations and adapts the parameters based at least in part upon the characteristic. While the applicant's points are understood, the examiner respectfully disagrees. See for example Kim column 1, lines 20-40. There Kim discloses transmitting data over a network or transmission channel. Kim further discloses encoding the video based on the bandwidth of the transmission channel in order to be able to send the data over the limited bandwidth network. Therefore the rejection has been maintained.

On page 18, applicant argues that Kim fails to disclose the DCT coding as claimed. While the applicant's points are understood, the examiner respectfully disagrees. See for example Kim figure 1 and column 2, lines 27-35. There Kim discloses the use of DCT coding in the MPEG environment. Therefore the rejection has been maintained.

On page 18, applicant argues that Krause fails to disclose the identifying selected blocks depends upon motion vectors. While the applicant's points are understood, the examiner respectfully disagrees. See for example Krause figure 4. There Krause illustrates a motion compensator and estimator which produce motion vectors for selecting blocks. Hence, the combination of Krause with Kim and Chan teach identifying the blocks using the motion vectors. Therefore the rejection has been maintained.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-4, 6-8, 11-12, 16, 19-22, 24-26, 28-31, 33, 36, and 39-58 are rejected

under 35 U.S.C. 103(a) as being unpatentable over Kim (5777680) in view of Chan et

al. (5812197), (hereinafter referred to as "Chan").

As for claims 1, 2, and 21 Kim teaches of dividing the part of the current frame

into blocks (Kim: Column 6, Lines 43-45); performing a first sub-encoding on a first

block or set of blocks (Kim: figure 1, column 6, lines 40-49. Note: first sub-encoding

involves the DPCM, MC, and controller); performing a second sub-encoding on the first

sub-encoded block or at least one block of the first set of blocks, the second sub-

encoding adapting at least one encoding parameter based upon a quantity of the first

sub-encoded part of the current frame, the quantity being determined by prediction at

least in part from of the frames of the sequence only those frames that are a reference

frame (Kim: figure 1, column 6, lines 49-64. Note: second sub-encoding process

involves the DCT and Q blocks); and performing the first sub-encoding and the second

sub-encoding on another block or set of blocks of the part of the current frame (Kim:

figures 1-2. Note: the process is continuous). However, Kim fails to disclose the

second sub encoding having a characteristic indicative of an energy content as claimed.

Chan teaches that prior art processing systems may output images with degraded

image quality (Chan: column 2, lines 6-26). To help alleviate this problem, Chan

discloses an apparatus comprising a characteristic indicative of an energy content, the

characteristic being determined by prediction without using either the first sub-encoded

block or set of blocks of the current frame (Chan: column 5, lines 48-54, wherein the energy is calculated using the original and predicted blocks. Therefore the current frame is not used). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to take the apparatus disclosed by Kim and add the energy calculations taught by Chan in order to obtain an apparatus that helps improve the quality of an image.

As for claims 3, 8, and 22, Kim teaches of computing of the quantity identifies the time elapsed between the current frame and the reference frame or frames (Kim: column 4, lines 51-60. Note: the quantization parameter calculated from parameters obtained from the first encoding step is directly reliant on the picture rate (i.e. frame rate) and therefore this would give the time between frames).

As for claims 4, 26, and 31, Kim teaches of the encoded frames are transmitted over a transmission channel and wherein the adaptive encoding method compensates for channel bandwidth limitations and adapts the second sub-encoding parameters based at least in part upon the quantity (Kim: column 7, lines 24-42. Note: the buffer controls the transmission of the data to the decoder as is well known in the art, the fullness of the buffer is fed to the control which takes it into account when calculating the quantization parameter).

As for claims 6 and 24, Kim teaches of the second sub-encoding is selected from the group comprising: wavelet encoding, quadtree or binary tree coding, DCT coding and matching pursuits coding (Kim: figure 1, column 6, lines 40-64. Note: DCT coding is used).

As for claims 7, 11-12, 16, 19-20, 25, 28-30, 33, and 36, most of the limitations of

the claims are contained in the above rejection of claim 1. Kim teaches of dividing the

reference frame into blocks and labeling the blocks of the reference frame in

accordance with the performance of a first sub-encoding that is applied to the reference

frame (Kim: column 7, lines 1-21. Note: after the reference frame goes through the MC

the frame is labeled by the control in DPCM block); computing a quantity based on the

labeling of the blocks and from the frames of the sequence only those frames that are a

reference frame (Kim: Column 4, Lines 30-67 and Column 5, Lines 1-38).

As for claims 39-58, Chan discloses the characteristic is determined prior to

buffering the current frame (Chan: figures 5-6, wherein the characteristic is determined

without the use of a buffer).

3.   Claims 13-15, 17-18, 32, and 34-35 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kim (US 5,777,680) in view of Chan et al. (5812197), (hereinafter

referred to as "Chan") in further view of Sun (US 5,969,764).

As for claims 15, 18, 32, and 35, most of the limitations of the claims are

contained in the above rejection of claims 1 and 7. Kim in view of Chan do not explicitly

teach of deciding based on the computed quantity to perform or skip encoding the

current frame, however, Sun does (Sun: column 8, lines 51-62. Note: as disclosed in

Sun, it is well known in the art that skipping a frame or increasing quantization levels are

equivalent). Therefore it would have been obvious to one of ordinary skill in the art at

the time of the invention to have the option of using the computed quantity or skipping

the current frame. By skipping the current frame the coder can allow the transmitted

stream to "catch up" to the coder without using any bits or allowing the coarseness to become to larger.

As for claims 13, 17, and 34, most of the limitations of the claims are contained in the above rejection of claim 15. Kim does not explicitly teach of the decision step deciding whether the two step encoding method is to be applied to the current frame or not, however, Sun does (Sun: column 8, lines 51-62. Note: the deciding step being whether or not to skip the frame). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the option of using the computed quantity or skipping the current frame. By skipping the current frame the coder can allow the transmitted stream to "catch up" to the coder without using any bits or allowing the coarseness to become to larger.

As for claim 14, most of the limitations of the claims are contained in the above rejection of claim 13. Kim teaches of the encoded frames are transmitted over a transmission channel and wherein the adaptive encoding method compensates for channel bandwidth limitations and adapts the second sub-encoding parameters based at least in part upon the quantity (Kim: column 7, lines 24-42. Note: the buffer controls the transmission of the data to the decoder as is well known in the art, the fullness of the buffer is fed to the control which takes it into account when calculating the quantization parameter).

4.   Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (5777680) in view of Chan et al. (5812197), (hereinafter referred to as "Chan") in further view of Lee (6023296).

As for claims 5 and 23, most of the limitations of the claim are contained in the above rejection of claims 1 and 20. Kim does not explicitly teach of performing transformation parameter estimation of a block with respect to the reference frame; thereafter performing transformation compensation on the block; and thereafter determining the error block, however, Lee does (Lee: column 3, lines 39-67, column 4, lines 1-7. Note: the motion estimation is put before the motion compensation in order to improve efficiency of the motion compensator and the subtractor will give the error signal). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to add the motion estimator in order to improve the efficiency of the motion compensator.

5.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (5777680) in view of Chan et al. (5812197), (hereinafter referred to as "Chan") in further view of Krause (5093720).

As for claim 9, most of the limitations of the claim are contained in the above rejection of claim 7. Although Kim does not explicitly teach of comparing the motion vectors to determine the labeling, it is considered well known in the art to do so (See Krause Column 4, Lines 9-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to compare the motion vectors because the motion vectors would already be readily available from the motion estimation processes and therefore would be computationally friendly.

Allowable Subject Matter

6.   Claims 37-38 are allowed.

7.   Claims 10 and 27 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dave Czekaj whose telephone number is (571) 272-

7327. The examiner can normally be reached on Mon-Thurs and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
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USPTO Customer Service Representative or access to the automated information
system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dave Czekaj   MEHRDAD DASTOURI
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